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ENVIRON

March 16, 2000

Mr. Michael McAteer
USEPA, HSRW-6J
77 West Jackson Blvd.
Chicago, IL 60604-3590

Re: Third Quarter 1999 Subsurface and Surface Water Monitoring Report
ECC Site
Zionsville, Indiana

Dear Mr. McAteer:

This report summarizes the monitoring of the till wells, the sand/gravel wells, and the surface water of Unnamed Ditch at the ECC Site in Zionsville, Indiana during the third quarter of 1999.

The specific tasks completed during the third quarter of 1999 included:

- Collection of water level measurements from 15 monitoring wells and one piezometer on August 9, 1999;
- Sampling of the 6 off-site till monitoring wells and the 5 off-site sand/gravel wells, including ECC MW-13, during the week of August 9, 1999;
- Analysis of all subsurface water samples collected for parameters specified in the Revised Remedial Action, Exhibit A, Revision 2, dated May 7, 1997 (Revised Exhibit A);

No surface water measurements or samples were collected due to lack of water within the Unnamed Ditch.

The following section provides a brief description of the Third Quarter sampling activities. The Third Quarter water level measurements, analytical results for the subsurface water samples, the field measurements and purge data are summarized in the attached tables.

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A. Subsurface Water Flow Determination

1. Data Collection

On August 9, 1999, the depth to water was measured at the four on-site till monitoring wells, the six off-site till monitoring wells, the four off-site sand/gravel monitoring wells, monitoring well MW-13, and the piezometer P-1 using an electronic water level meter. The monitoring well locations are shown on Figure 1. Measurements were recorded to the nearest 0.01 foot. The depth to water measurements and the corresponding water elevation data derived from these measurements are presented in Table 1.

2. Subsurface Water Elevation Data

The subsurface water elevations and contours for the sand/gravel unit at the site for the third quarter are provided in Figure 2.

B. Off-Site Subsurface Water Sampling

Twelve subsurface water samples (including duplicates) were collected from the off-site monitoring wells (T-5 through T-10, S-1 through S-4A, and ECC MW13) on August 9 through 13, 1999. All samples were collected as described in Section 6.3 of the Radian, Revised Remedial Action Field Sampling Plan, Revision 4, dated April 28, 1998 (FSP). The off-site subsurface water sample results are summarized in Table 2 and Table 3.

In accordance with the FSP, the off-site monitoring wells were purged of a minimum of three well volumes or until the wells went dry, prior to sampling. The water in the till wells was evacuated using dedicated polyethylene disposable bailers and sampled using dedicated Teflon disposable bailers. Due to the poor recovery of some of the till wells (i.e., T-5 and T-8), the samples from these wells were collected over a period of 1 to 5 days. For all till wells, the volatile organic compounds (VOCs) and hexavalent chromium samples were collected as soon as possible on the day of purging.

The water in the sand/gravel wells was purged and sampled using a peristaltic pump and dedicated polyethylene tubing. The intake for the polyethylene tubing was placed at the bottom of the screened interval.

The metals and polychlorinated biphenyls (PCBs) samples were filtered using a 0.45-micron filter in accordance with Section 6.3 of the FSP. Field measurements of pH, temperature, specific conductivity, and dissolved oxygen were collected before and after the purging procedure. Field indicator parameters and other information recorded during well purging and sampling are provided in Tables A-1 and A-2 of Appendix A.

Elevated pH values were measured during the purging and sampling of monitoring well T-7 (pH 12.02-12.14). These elevated pH levels are possibly the result of concrete grout, used to install the outer protective casing, in contact with the T-7 well screen.

C. On-Site Subsurface Water Sampling

As part of the semi-annual sampling of the on-site monitoring wells, four subsurface water samples are collected from the four on-site till wells on a biannual basis. These samples are

collected during the second and fourth quarterly sampling events. Therefore, no samples were collected from these wells during this sampling event.

D. Surface Water Sampling

Due to a lack of water throughout the entire length of the Unnamed Ditch, no surface water samples or field measurements were collected from any of the three surface water locations (SW-1, SW-2, and NSL-1) during this sampling event.

E. Sample Analysis and Results

Following sample collection, the samples were placed in an ice-filled cooler and were shipped via overnight courier to CompuChem Laboratories of Cary, North Carolina, for analysis. Appropriate chain-of-custody protocols were followed throughout sample handling.

Subsurface water samples were analyzed for the parameters listed in Table 3-1 of Revised Exhibit A in accordance with the analytical methods summarized in Table 7-1 of the FSP. Analytical results for the subsurface and the quality assurance and quality control samples for this sampling event are summarized in Table 2 through Table 4.

F. Quality Assurance and Quality Control Procedures

To monitor the effectiveness of decontamination procedures, ENVIRON collected field blanks by pouring deionized water through a dedicated Teflon bailer into a sample container or by pumping deionized water through the peristaltic pump and dedicated tubing into a sample container. For the metals and PCB samples, the field blank water was also passed through a 0.45 micron filter. A total of two field blanks were collected and analyzed this quarter. Three trip blanks were submitted to the laboratory to monitor for possible contamination from sample handling, transport, and storage. The trip blanks accompanied the samples and were analyzed for the VOCs listed in Table 3-1 of Revised Exhibit A. The trip and field blank sample results were compared to the most stringent of the Acceptable Stream Concentrations and the Acceptable Subsurface Water Concentrations for each analyte. The trip and field blank sample results are presented in Table 4.

Methylene chloride and acetone, common laboratory contaminants, were detected at low concentrations in both trip blanks collected during the Third Quarter sampling event. Low concentrations of acetone were also detected within both field blanks. In addition, acetone, methyl ethyl ketone, and methylene chloride were detected within the laboratory method blanks. ENVIRON believes that the methylene chloride and acetone detections within the trip blanks and field blanks are the result of laboratory contamination. ENVIRON is continuing to work with the laboratory to rectify this problem.

In addition to methylene chloride and acetone, low concentrations of trichloroethene, methyl isobutyl ketone, and methyl ethyl ketone were detected in the August 9, 1999 trip blank and a low concentration of methyl isobutyl ketone was detected within the August 10, 1999 trip blank. Also, low concentrations of antimony, barium, beryllium, manganese, nickel and silver were detected within the field blanks. ENVIRON has not yet located the source of these analytes to the trip and field blanks.

To evaluate the reproducibility of results, ENVIRON collected one duplicate subsurface water sample (collected from sand/gravel zone well S-4A). The duplicate sample was collected by pumping the subsurface water into two sets of sample containers. The results of the duplicate samples are presented in Table 3. The results for the duplicate pairs were similar, indicating good reproducibility of the sampling and analytical methods. In addition to the duplicate samples, ENVIRON collected extra sample volume from 5 percent of the wells for the laboratory matrix spike and matrix spike duplicate (MS/MSD) samples.

If you have any questions about this letter or any other aspects of the project, please do not hesitate to contact us.

Sincerely,

ENVIRON International Corporation

Scott Hayter, P.G.
Senior Associate

Ronald E. Hutchens, P.E.
Principal

cc: Mr. Myron Waters - IDEM
Mr. Tim Harrison - CH2M Hill
Mr. Roy Ball - ENVIRON International Corporation
Mr. Norman Bernstein - N.W. Bernstein & Associates, Inc.
Mr. George Anastos - Versar, Inc.

Tables

TABLE 1
Subsurface Water Elevations - August 9, 1999
ECC Compliance Monitoring Wells
Third Quarter 1999

Well Number	Rim of PVC Elevation (feet AMSL)	Depth-to-Water (feet)	Water Elevation (feet AMSL)
T-1	897.41	18.31	879.10
T-2	898.67	18.07	880.60
T-3	896.07	15.07	881.00
T-4A	895.37	17.14	878.23
T-5	889.08	9.86	879.22
T-6	891.76	12.66	879.10
T-7	891.02	12.11	878.91
T-8	888.88	10.30	878.58
T-9	882.08	3.30	878.78
T-10	889.42	11.01	878.41
S-1	890.27	11.00	879.27
S-2	888.46	9.60	878.86
S-3	882.45	4.30	878.15
S-4A	889.59	10.81	878.78
P-1	889.66	10.77	878.89
ECC MW-13	883.30	11.59	871.71

Notes:
AMSL - Above Mean Sea Level.
PVC - Polyvinyl Chloride Inner Well Casing.

TABLE 2 (Page 1 of 3)
Analytical Results for Subsurface Water Samples
ECC Off-Site Till Monitoring Wells
Third Quarter 1999

LOCATION ENVIRON SAMPLE ID COLLECTION METHOD COLLECTION DATE COMMENT		T-5 ECTGW5-04 Bailer 8/9/99	T-6 ECTGW6-04 Bailer 8/9/99	T-7 ECTGW7-04 Bailer 8/9/99	T-8 ECTGW8-04 Bailer 8/10/99	T-9 ECTGW9-04 Bailer 8/11/99	T-10 ECTGW10-04 Bailer 8/11/99
Volatile Organics							
1,2-Dichloroethene(total)	*[1.85]*	0.5 U	**71,300 D**	**123 D**	**6.0**	**4.0**	**19.4 D**
1,1-Dichloroethene	*[1.85]*	0.5 U	**4.0**	0.5 U	0.5 U	0.5 U	0.5
1,1,1-Trichloroethane	*[5,280]*	0.5 U	**2,500 D**	0.5 U	0.5 U	0.5 U	18
1,1,2-Trichloroethane	*[41.8]*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	*[3,280]*	0.5 U	10	1.0	0.5 U	0.5 U	0.5 U
Trichloroethene	*[80.7]*	0.5 U	0.6	17	1.0	0.5 U	2.0
Tetrachloroethene	*[8.85]*	0.5 U	0.3 J	2.0	0.7	0.5 U	0.5 U
Methylene Chloride	*[15.7]*	0.1 J	7.0	1.0	0.2 J	0.5 JB	0.4 JB
Toluene	*[3,400]*	0.5 U	72 E	18	0.5 U	0.5 U	0.5 U
Vinyl chloride	*[525]*	0.5 U	110 E	3.0	0.4 J	0.5 U	0.5 U

Notes:

All concentrations are in ug/L.

Concentrations in bold exceed the Acceptable Stream Concentrations as presented in Revised Exhibit A, Table 3-1.

[15.7] - Acceptable Stream Concentration.

U - Compound not detected above adjacent method detection limit.

J - Estimated Value.

D - Compound quantitated on a diluted sample.

E - Concentration exceeds the calibration range of the instrument.

B - Analyte was also detected in the laboratory method blank.

TABLE 2 (Page 2 of 3)
Analytical Results for Subsurface Water Samples
ECC Off-Site Till Monitoring Wells
Third Quarter 1999

LOCATION		T-5	T-6	T-7	T-8	T-9	T-10
ENVIRON SAMPLE ID		ECTGW5-04	ECTGW6-04	ECTGW7-04	ECTGW8-04	ECTGW9-04	ECTGW10-04
COLLECTION METHOD		Bailer	Bailer	Bailer	Bailer	Bailer	Bailer
COLLECTION DATE		8/9/99	8/9/99	8/9/99	8/10/99	8/11/99	8/11/99
COMMENT							
Semi-Volatile Organics							
Phenol	*[570]*	9.0 U	520	80	3.0 J	10 U	10 U
1,2-Dichlorobenzene	*[763]*	9.0 U	34 J	10 U	10 U	10 U	10 U
Naphthalene	*[620]*	9.0 U	11 J	10 U	10 U	10 U	10 U
Diethylphthalate	*[52,100]*	9.0 U	50 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	*[154,000]*	9.0 U	50 U	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	*[50,000]*	9.0 U	50 U	2.0 J	1.0 J	6.0 J	2.0 J
Polychlorinated biphenyls							
Aroclor-1016	*[1.0]*	0.5 U	0.5 U	0.5 U	0.45 U	0.5 U	0.5 U
Aroclor-1221	*[2.0]*	1.0 U	1.0 U	1.0 U	0.91 U	1.0 U	1.0 U
Aroclor-1232	*[1.0]*	0.5 U	0.5 U	0.5 U	0.45 U	0.5 U	0.5 U
Aroclor-1242	*[1.0]*	0.5 U	0.5 U	0.5 U	0.45 U	0.5 U	0.5 U
Aroclor-1248	*[1.0]*	0.5 U	0.5 U	0.5 U	0.45 U	0.5 U	0.5 U
Aroclor-1254	*[1.0]*	0.5 U	0.5 U	0.10 J	0.45 U	0.5 U	0.5 U
Aroclor-1260	*[1.0]*	0.5 U	0.5 U	0.5 U	0.45 U	0.5 U	0.5 U

Notes:

All concentrations are in ug/L.

Concentrations in bold exceed the Acceptable Stream Concentrations as presented in Revised Exhibit A, Table 3-1.

USEPA Contract Laboratory Program method detection limits for PCBs were used in place of the Acceptable Stream Concentrations since PCB the detection limits are above their respective Acceptable Stream Concentrations.

[15.7] - Acceptable Stream Concentration.

U - Compound not detected above adjacent method detection limit.

J - Estimated Value.

TABLE 2 (Page 3 of 3)
Analytical Results for Subsurface Water Samples
ECC Off-Site Till Monitoring Wells
Third Quarter 1999

LOCATION ENVIRON SAMPLE ID COLLECTION METHOD COLLECTION DATE COMMENT		T-5 ECTGW5-04 Bailer 8/9/99	T-6 ECTGW6-04 Bailer 8/9/99	T-7 ECTGW7-04 Bailer 8/9/99	T-8 ECTGW8-04 Bailer 8/10/99	T-9 ECTGW9-04 Bailer 8/11/99	T-10 ECTGW10-04 Bailer 8/11/99
Inorganics							
Arsenic	*[10]*	2.1 B	**42.3**	2.0 U	2.0 U	2.0 U	4.4 B
Lead	*[10]*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel	*[100]*	3.2 B	44.5	8.5	2.1 B	15.6	12.4
Zinc	*[47]*	9.7 B	12.8 B	1.1 U	29.1	4.2 B	7.2 B
Cyanide	*[5.2]*	2.8 U	3.4 B	2.8 U	2.8 U	2.8 U	2.8 U
Chromium VI	*[11]*	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Notes:

All concentrations are in ug/L.

Concentrations in bold exceed the Acceptable Stream Concentrations as presented in Revised Exhibit A, Table 3-1.

USEPA Contract Laboratory Program method detection limit for arsenic was used in place of the Acceptable Stream Concentration since the detection limit for arsenic is above its respective Acceptable Stream Concentration.

[15.7] - Acceptable Stream Concentration.

B - Analyte value is < contract required detection limit but > = instrument detection limit.

U - Compound not detected above adjacent method detection limit.

TABLE 3 (Page 1 of 3)
Analytical Results for Subsurface Water Samples
ECC Off-Site Sand/Gravel Monitoring Wells
Third Quarter 1999

LOCATION ENVIRON SAMPLE ID COLLECTION METHOD COLLECTION DATE COMMENT		S-1 ECSGW1-04 Perist. Pump 8/11/99	S-2 ECSGW2-04 Perist. Pump 8/10/99	S-3 ECSGW3-04 Perist. Pump 8/10/99	S-4A ECSGW4-04 Perist. Pump 8/10/99	S-4A-D ECSGW4-04D Perist. Pump 8/10/99 Duplicate	MW13 ECSGWM13-04 Perist. Pump 8/10/99
Volatile Organics							
1,2-Dichloroethene(total)	*[1.85]*	0.3 J	0.6	0.5 U	**85.8 D**	**91.9 D**	**2.3**
1,1-Dichloroethene	*[1.85]*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	*[5,280]*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J
1,1,2-Trichloroethane	*[41.8]*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	*[3,280]*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	*[80.7]*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 J
Tetrachloroethene	*[8.85]*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride	*[15.7]*	0.5 JB	0.5 U	0.2 J	0.3 J	0.3 J	0.8
Toluene	*[3,400]*	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl chloride	*[525]*	0.5 U	0.6	0.5 U	0.5 U	0.5 U	0.6

Notes:

All concentrations are in ug/L.

Concentrations in bold exceed the Acceptable Stream Concentrations as presented in Revised Exhibit A, Table 3-1.

[15.7] - Acceptable Stream Concentration.

U - Compound not detected above adjacent method detection limit.

J - Estimated Value.

B - Analyte was also detected in the laboratory method blank.

D - Compound quantitated on a diluted sample.

TABLE 3 (Page 2 of 3)
Analytical Results for Subsurface Water Samples
ECC Off-Site Sand/Gravel Monitoring Wells
Third Quarter 1999

LOCATION		S-1	S-2	S-3	S-4A	S-4A-D	MW13
ENVIRON SAMPLE ID		ECSGW1-04	ECSGW2-04	ECSGW3-04	ECSGW4-04	ECSGW4-04D	ECSGWM13-04
COLLECTION METHOD		Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump
COLLECTION DATE		8/11/99	8/10/99	8/10/99	8/10/99	8/10/99	8/10/99
COMMENT						Duplicate	
Semi-Volatile Organics							
Phenol	*[570]*	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	*[763]*	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	*[620]*	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	*[52,100]*	10 U	10 U	10 U	10 U	10 U	1.0 J
Di-n-butylphthalate	*[154,000]*	10 U	4.0 J	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	*[50,000]*	10 U	1.0 J	10 U	10 U	10 U	10 U
Polychlorinated biphenyls							
Aroclor-1016	*[1.0]*	0.5 U	0.56 U	0.52 U	0.55 U	0.52 U	0.52 U
Aroclor-1221	*[2.0]*	1.0 U	1.1 U	1.0 U	1.1 U	1.0 U	1.0 U
Aroclor-1232	*[1.0]*	0.5 U	0.56 U	0.52 U	0.55 U	0.52 U	0.52 U
Aroclor-1242	*[1.0]*	0.5 U	0.56 U	0.52 U	0.55 U	0.52 U	0.52 U
Aroclor-1248	*[1.0]*	0.5 U	0.56 U	0.52 U	0.55 U	0.52 U	0.52 U
Aroclor-1254	*[1.0]*	0.5 U	0.56 U	0.52 U	0.55 U	0.52 U	0.52 U
Aroclor-1260	*[1.0]*	0.5 U	0.56 U	0.52 U	0.55 U	0.52 U	0.52 U

Notes:

All concentrations are in ug/L.

Concentrations in bold exceed the Acceptable Stream Concentrations as presented in Revised Exhibit A, Table 3-1.

USEPA Contract Laboratory Program method detection limits for PCBs were used in place of the Acceptable Stream Concentrations since the PCB detection limits are above their respective Acceptable Stream Concentrations.

[15.7] - Acceptable Stream Concentration.

U - Compound not detected above adjacent method detection limit.

J - Estimated Value.

TABLE 3 (Page 3 of 3)
Analytical Results for Subsurface Water Samples
ECC Off-Site Sand/Gravel Monitoring Wells
Third Quarter 1999

LOCATION		S-1	S-2	S-3	S-4A	S-4A-D	MW13
ENVIRON SAMPLE ID		ECSGW1-04	ECSGW2-04	ECSGW3-04	ECSGW4-04	ECSGW4-04D	ECSGWM13-04
COLLECTION METHOD		Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump	Perist. Pump
COLLECTION DATE		8/11/99	8/10/99	8/10/99	8/10/99	8/10/99	8/10/99
COMMENT						Duplicate	
Inorganics							
Arsenic	*[10]*	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	**21.5**
Lead	*[10]*	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5 B
Nickel	*[100]*	1.0 U	4.7 B	8.8	1.0 U	1.0 U	6.2
Zinc	*[47]*	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cyanide	*[5.2]*	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U
Chromium VI	*[11]*	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U

Notes:

All concentrations are in ug/L.

Concentrations in bold exceed the Acceptable Stream Concentrations as presented in Revised Exhibit A, Table 3-1.

USEPA Contract Laboratory Program method detection limit for arsenic was used in place of the Acceptable Stream Concentration since the detection limit for arsenic is above its respective Acceptable Stream Concentration.

U.S. EPA- approved quantification limit.

[15.7] - Acceptable Stream Concentration.

B - Analyte value is < contract required detection limit but > = instrument detection limit.

U - Compound not detected above adjacent method detection limit.

TABLE 4 (Page 1 of 2)
ANALYTICAL RESULTS FOR QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
THIRD QUARTER 1999
ECC SITE

TYPE ENVIRON SAMPLE ID COLLECTION METHOD COLLECTION DATE		TRIP BLANK ECTB1-04 None 8/9/99	TRIP BLANK ECTB2-04 None 8/10/99	TRIP BLANK ECTB3-04* None 8/11/99	FIELD BLANK ECSGWM1304B Perist Pump 8/10/99	FIELD BLANK ECTGW9-04B Bailer 8/11/99
Volatile Organic Compounds						
Acetone	*[3,500]*	3.0	2.0 JB	NA	2.0 JB	2.0 JB
1,1-Dichloroethene	*[1.85]*	0.5 U	0.5 U	NA	0.5 U	0.5 U
1,2-Dichloroethene (total)	*[1.85]*	0.5 U	0.5 U	NA	0.5 U	0.5 U
Ethylbenzene	*[680]*	0.5 U	0.5 U	NA	0.5 U	0.5 U
Methy isobutyl ketone	*[1,750]*	1.0 J	0.4 J	NA	2.0 U	2.0 U
Methyl ethyl ketone	*[170]*	1.0 J	2.0 U	NA	2.0 U	2.0 U
Methylene Chloride	*[4.7]*	0.8	0.5	NA	0.5 U	0.5 U
Tetrachloroethene	*[0.69]*	0.5 U	0.5 U	NA	0.5 U	0.5 U
Toluene	*[2,000]*	0.5 U	0.5 U	NA	0.5 U	0.5 U
Trichloroethene	*[5]*	0.5 U	0.5 U	NA	0.5 U	0.5 U
1,1,1-Trichloroethane	*[200]*	0.5 U	0.5 U	NA	0.5 U	0.5 U
1,1,2-Trichloroethane	*[0.61]*	0.5 U	0.5 U	NA	0.5 U	0.5 U
Vinyl Chloride	*[2]*	0.5 U	0.5 U	NA	0.5 U	0.5 U
Xylenes (total)	*[10,000]*	0.5 U	0.5 U	NA	0.5 U	0.5 U
Semi-Volatile Organic Compounds						
Bis (2-ethylhexyl) phthalate	*[2.5]*	NA	NA	NA	10 U	10 U
Di-n-butyl phthalate	*[3,500]*	NA	NA	NA	10 U	10 U
1,2-Dichlorobenzene	*[600]*	NA	NA	NA	10 U	10 U
Diethyl phthalate	*[28,000*	NA	NA	NA	10 U	10 U
Isoporone	*[8.5]*	NA	NA	NA	10 U	10 U
Naphthalene	*[620]*	NA	NA	NA	10 U	10 U
Phenol	*[570]*	NA	NA	NA	10 U	10 U

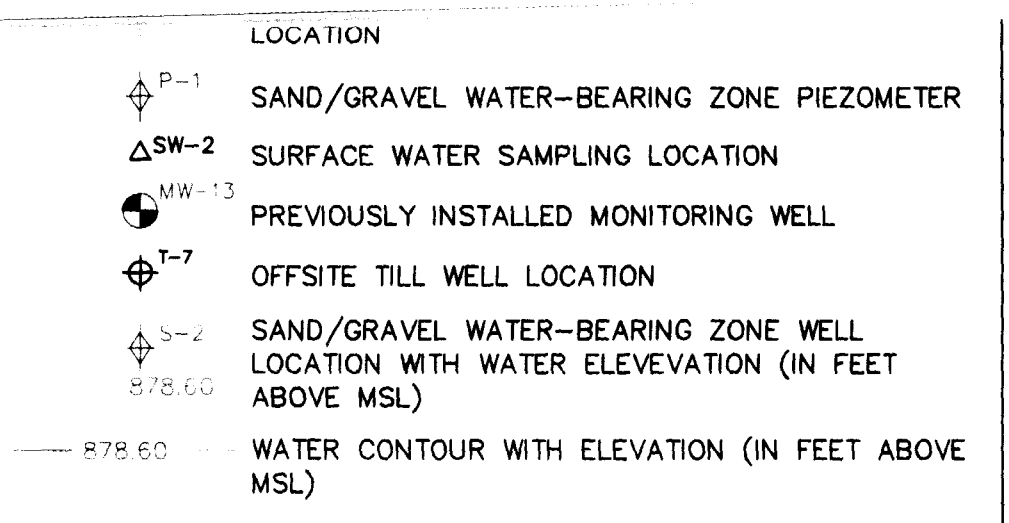
Notes: All concentrations are in ug/L.
Concentrations in bold exceed the most stringent of the Acceptable Stream Concentrations and the Subsurface Water Concentrations as presented in Revised Exhibit A, Table 3-1.
[2] - Most stringent of the Acceptable Stream Concentrations and the Acceptable Subsurface Water Concentrations.
U - Compound not detected above adjacent method detection limit.
J - Estimated value
B - Analyte was also detected in the laboratory method blank.
* - ECTB3-04 not analyzed due to crack in sample container
NA - Not Analyzed

TABLE 4 (Page 2 of 2)
ANALYTICAL RESULTS FOR QUALITY ASSURANCE / QUALITY CONTROL SAMPLES
THIRD QUARTER 1999
ECC SITE

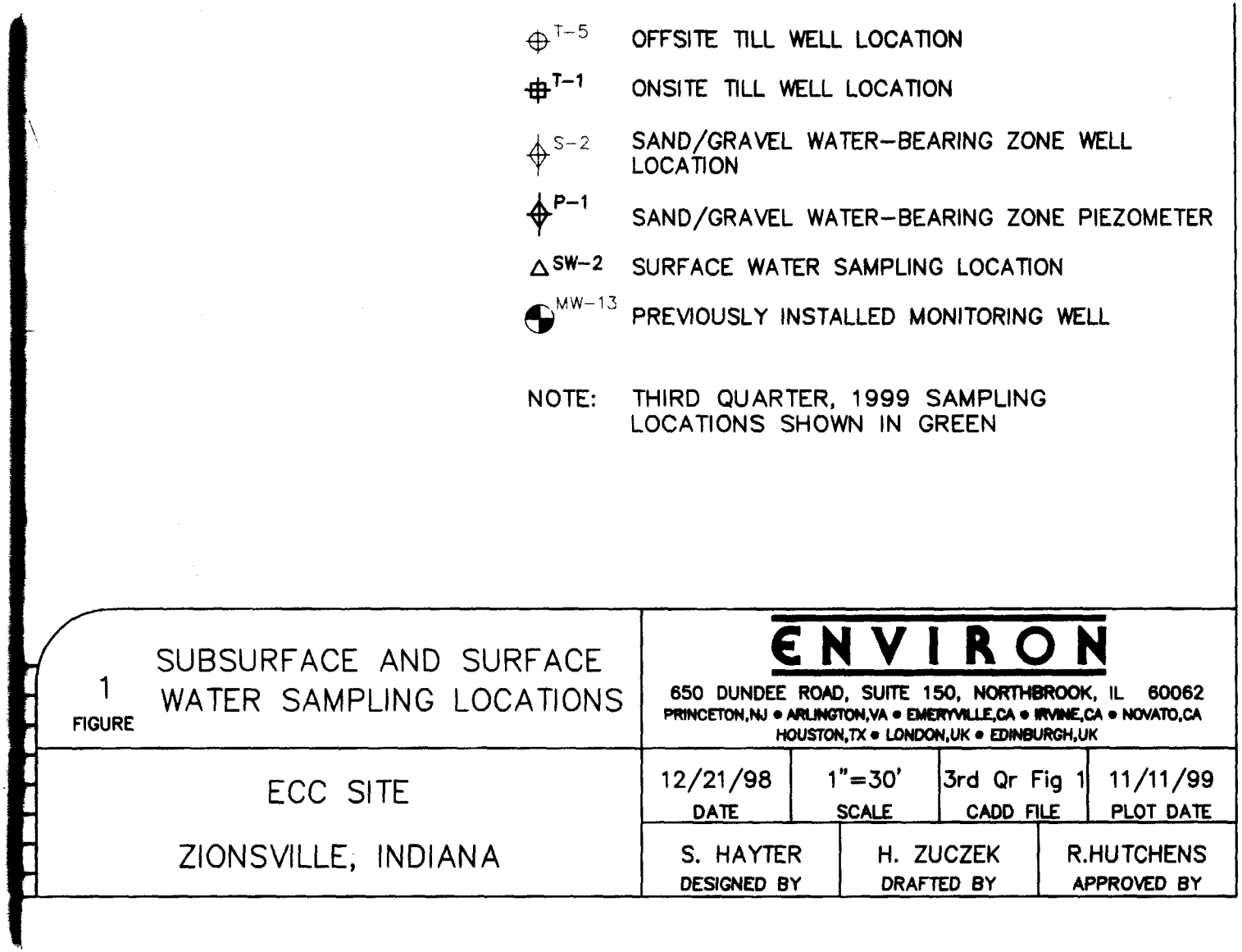
TYPE ENVIRON SAMPLE ID COLLECTION METHOD COLLECTION DATE		TRIP BLANK ECTB1-04 None 8/9/99	TRIP BLANK ECTB2-04 None 8/10/99	TRIP BLANK ECTB3-04* None 8/11/99	FIELD BLANK ECSGWM1304B Perist Pump 8/10/99	FIELD BLANK ECTGW9-04B Bailer 8/11/99
Polychlorinated biphenyls						
Aroclor 1016	*[1.0]*	NA	NA	NA	0.53 U	0.5 U
Aroclor 1221	*[2.0]*	NA	NA	NA	1.0 U	1.0 U
Aroclor 1232	*[1.0]*	NA	NA	NA	0.53 U	0.5 U
Aroclor 1242	*[1.0]*	NA	NA	NA	0.53 U	0.5 U
Aroclor 1248	*[1.0]*	NA	NA	NA	0.53 U	0.5 U
Aroclor 1254	*[1.0]*	NA	NA	NA	0.53 U	0.5 U
Aroclor 1260	*[1.0]*	NA	NA	NA	0.53 U	0.5 U
Inorganics						
Antimony	*[14]*	NA	NA	NA	1.9 B	2.2 B
Arsenic	*[10]*	NA	NA	NA	2.0 U	2.0 U
Barium	*[1,000]*	NA	NA	NA	0.2 U	16.8
Beryllium	*[4]*	NA	NA	NA	0.13 B	0.1 U
Cadmium	*[10]*	NA	NA	NA	0.5 U	0.5 U
Chromium VI	*[11]*	NA	NA	NA	10 U	10 U
Lead	*[10]*	NA	NA	NA	1.0 U	1.0 U
Manganese	*[7,000]*	NA	NA	NA	0.63 B	0.4 B
Nickel	*[100]*	NA	NA	NA	1.0 U	1.1 B
Silver	*[50]*	NA	NA	NA	0.33 B	0.3 U
Tin	*[21,000]*	NA	NA	NA	4.2 U	4.2 U
Vanadium	*[245]*	NA	NA	NA	0.6 U	0.6 U
Zinc	*[47]*	NA	NA	NA	1.1 U	1.1 U
Cyanide	*[5.2]*	NA	NA	NA	2.8 U	2.8 U

Notes: All concentrations are in ug/L.
Concentrations in bold exceed the most stringent of the Acceptable Stream Concentrations and the Subsurface Water Concentrations as presented in Revised Exhibit A, Table 3-1.
USEPA Contract Laboratory Program method detection limits for PCBs and arsenic were used in place of the Acceptable Stream and Acceptable Subsurface Water Concentrations for these analytes since these detection limits are above their respective Table 3-1 values.
[2] - Most stringent of the Acceptable Stream Concentrations and the Acceptable Subsurface Water Concentrations.
U - Compound not detected above adjacent method detection limit.
B - Analyte value is <contract required detection limit but > =instrument detection limit.
NA - Not Analyzed

Figures



2 FIGURE	WATER ELEVATION CONTOURS IN SAND/GRAVEL ZONE 3rd Quarter 1999	**ENVIRON** 650 DUNDEE ROAD, SUITE 150, NORTHBROOK, IL 60062 PRINCETON,NJ • ARLINGTON,VA • EMERYVILLE,CA • IRVINE,CA • NOVATO,CA HOUSTON,TX • LONDON,UK • EDINBURGH,UK
ECC SITE ZIONSVILLE, INDIANA	02/02/00 DATE | 1"=30' SCALE | 3rd Qr Fig2 CADD FILE | 02/02/00 PLOT DATE	
	S. HAYTER DESIGNED BY | APR DRAFTED BY | R.HUTCHENS APPROVED BY	


T-5
OFFSITE TILL WELL LOCATION
T-1
ONSITE TILL WELL LOCATION
S-2
SAND/GRAVEL WATER-BEARING ZONE WELL LOCATION
P-1
SAND/GRAVEL WATER-BEARING ZONE PIEZOMETER
SW-2
SURFACE WATER SAMPLING LOCATION
MW-13
PREVIOUSLY INSTALLED MONITORING WELL
NOTE: THIRD QUARTER, 1999 SAMPLING LOCATIONS SHOWN IN GREEN
1
FIGURE
SUBSURFACE AND SURFACE WATER SAMPLING LOCATIONS
ENVIRON
650 DUNDEE ROAD, SUITE 150, NORTHBROOK, IL 60062
PRINCETON,NJ • ARLINGTON,VA • EMERYVILLE,CA • IRVINE,CA • NOVATO,CA
HOUSTON,TX • LONDON,UK • EDINBURGH,UK
ECC SITE
ZIONSVILLE, INDIANA
12/21/98
DATE
1"=30'
SCALE
3rd Qr Fig 1
CADD FILE
11/11/99
PLOT DATE
S. HAYTER
DESIGNED BY
H. ZUCZEK
DRAFTED BY
R.HUTCHENS
APPROVED BY

Appendix A
Field Measurements and Purge Data

TABLE A-1
FIELD MEASUREMENTS AND PURGE DATA
ECC OFF-SITE TILL WELLS
THIRD QUARTER 1999

Field Parameters and Data	T-5	T-6	T-7	T-8	T-9	T-10
Date	8/9/99	8/9/99	8/9/99	8/10/99	8/11/99	8/11/99
Weather Conditions	Sunny 78 F	Sunny 78 F	Sunny 78 F	Overcast 85 F	Sunny 85 F	Sunny 85 F
Before Purging						
PID Reading (ppm) 8/9/99	0	0	1	8	0	0
pH	7.05	6.66	12.02	8.3	6.96	6.71
Dissolved Oxygen (ppm)	3.63	0.67	4.1	1.08	1.18	2.02
Temperature (C)	17.5	17.1	18.1	17.3	17.5	17.6
Specific Conductivity (uS/cm)	0.771	4.1	4.1	0.727	1.28	1.31
Total Depth of Well (Feet below ground surface)	18.41	19.1	17.3	15.63	25.2	17.65
Depth to water (Ft from top of inner casing to water)	9.86	12.66	12.11	10.3	3.3	11.01
Estimated water volume in well (gallons)	1.37	1.05	0.85	0.87	3.57	1.08
Three Well Volumes (gallons)	4.1	3.15	2.54	2.61	10.7	3.25
After Purging						
Purge Start	1155	1315	1410	915	710	1435
Purge End	1245	1355	1435	955	800	1505
Purge Method	BT	BT	BT	BT	BT	BT
Approximate Purge Rate (gpm)	0.06	0.08	0.07	0.04	0.12	0.05
Total Volume Purged (gal.)	3 **	3.25	1.75 **	1.5 **	10.5	3.5
pH	7.75	6.76	12.14	7.7	7.05	6.98
Dissolved Oxygen (ppm)	3.83	2.45	1.94	NM	1.39	2.46
Temperature (C)	16.9	14.8	15.9	16.3	14.6	15.9
Specific Conductivity (uS/cm)	0.755	4.15	3.88	0.712	1.21	1.36
Sampling						
Sampling Date(s)	8/9/99	8/9/99	8/9/99	8/10/99	8/11/99	8/11/99
Sampling End Time	1245	1355	1435	955	800	1505
Sampling Method	BT	BT	BT	BT	BT	BT

Notes:
** = Well purged dry
BT = Bailer (Teflon)
NM = no measurement
PP = Peristaltic Pump
***PID displayed over range = above 2,000 ppm(max displayed)
PID = Photoionization Detector

TABLE A-2
FIELD MEASUREMENTS AND PURGE DATA
ECC OFF-SITE SAND / GRAVEL WELLS
THIRD QUARTER 1999

Field Parameters and Data	S-1	S-2	S-3	S-4A	MW-13
Date	8/11/99	8/10/99	8/10/99	8/10/99	8/10/99
Weather Conditions	Sunny 85 F	Overcast 85 F	Overcast 85 F	Overcast 85 F	Overcast 85 F
Before Purging					
PID Reading (ppm) 8/9/99	15	0	5	0	0
pH	7.18	7.3	7.36	7.21	6.94
Dissolved Oxygen (ppm)	1.14	1.2	1.04	0.96	0.7
Temperature (C)	17.5	15.6	16.6	16.3	18.8
Specific Conductivity (uS/cm)	0.691	1.18	1.13	0.702	1.18
Total Depth of Well (Feet below ground surface)	40.71	21.95	15.11	45.52	16.69
Depth to water (Ft from top of inner casing to water)	11	9.6	4.3	10.81	11.59
Estimated water volume in well (gallons)	4.84	2.03	1.76	5.67	0.83
Three Well Volumes(gallons)	14.53	6.1	5.29	17	2.5
After Purging					
Purge Start	1625	1000	1255	1420	1610
Purge End	1805	1050	1325	1525	1645
Purge Method	PP	PP	PP	PP	PP
Approximate Purge Rate (gpm)	0.146	0.125	0.183	0.262	0.071
Total Volume Purged (gal.)	14.6	6.25	5.5	17	2.5
pH	7.48	7.3	7.35	7.44	6.86
Dissolved Oxygen (ppm)	0.65	0.42	0.49	0.68	0.82
Temperature (C)	14.6	15.6	14.6	15.7	17.3
Specific Conductivity (uS/cm)	0.713	1.06	1.17	0.705	1.19
Sampling					
Sampling Date(s)	8/11/99	8/10/99	8/10/99	8/10/99	8/10/99
Sampling End Time	1805	1050	1325	1525	1645
Sampling Method	PP	PP	PP	PP	PP

Notes:

NM = no measurement

BT = Bailer (Teflon)

***PID displayed over range = above 2,000 ppm(max displayed)

PP = Peristaltic Pump

PID = Photoionization Detector